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The opportunities and challenges of moving beyond 20% greenhouse gas emission reductions

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Foreword

The threat to humanity posed by climate change is not decreasing, and the impacts of 2C warming are rather worse than previously thought. Although it is not possible to pin extreme weather events to global warming, it is very likely that climate change exacerbates the frequency and intensity of the extremes. In the year 2010 around two million Pakistani were left homeless after the floods and Russia's worst drought in decades has led to fires that have almost doubled death rates in Moscow to around seven hundred per day. "Warming of the climate is likely to bring more events of this sort."¹ At least some of the intensity of the devastating monsoon in Queensland can be attributed to climate change according to Australian scientists².

The inability of the international community to come to a comprehensive binding international climate treaty in Copenhagen does not mean countries are not taking action. Results from Cancun meeting prove that countries are taking action and negotiations have gained new momentum. Europe is now 17.3% below 1990 carbon emissions.³ The European Environmental Agency anticipates emissions to stabilise below 2008 levels, even with economic recovery, and without further measures.⁴

European countries face critical choices to preserve their future prosperity and security. Moving to a domestic greenhouse gas reduction target which is in line with the EU's climate objectives can be combined with healthier economy, increase in green jobs and innovation. The opportunities and challenges of stepping up to 30% greenhouse gas emission reduction are summarized in the remainder of this Working Document.

1. Climate science

*"The science of climate change has seemed to be derailed by climategate and the discovery of some errors in IPCC reports, even the gravest of which come far short of undermining its conclusions"*⁵.

In November over 1,000 stolen private e-mails from and to researchers at the Climatic Research Unit (CRU), a part of the University of East Anglia (UEA) in Britain, appeared on the internet. At the same time a controversy was bubbling up in India over a claim in the 2007 assessment report by the Intergovernmental Panel on Climate Change (IPCC) that the Himalayas could lose all their glaciers in 25 years, which was wrong. Several Committees looked into explanations and presented their results in July 2010. For the CRU and what became known as 'climategate', an independent panel was created by UEA and chaired by Muir Russell, a former vice-chancellor of the University of Glasgow. The Dutch environmental-assessment agency was asked to look for other errors in the regional analyses of the IPCC's report. Both the reports conclude that the science of climate is sound and that

¹ Henning Rodhe, professor emeritus of chemical meteorology at Stockholm University

² Matthew England of the Climate Change Research Center at the University of New South Wales, Reuters 12 January 2011

³ EEA, October 2010

⁴ COM(2010) 569 final, Progress towards achieving the Kyoto objectives, p.5

⁵ The Economist (8 July 2010), "Flawed scientists: The Intergovernmental Panel on Climate change needs reform. The case for climate action does not"

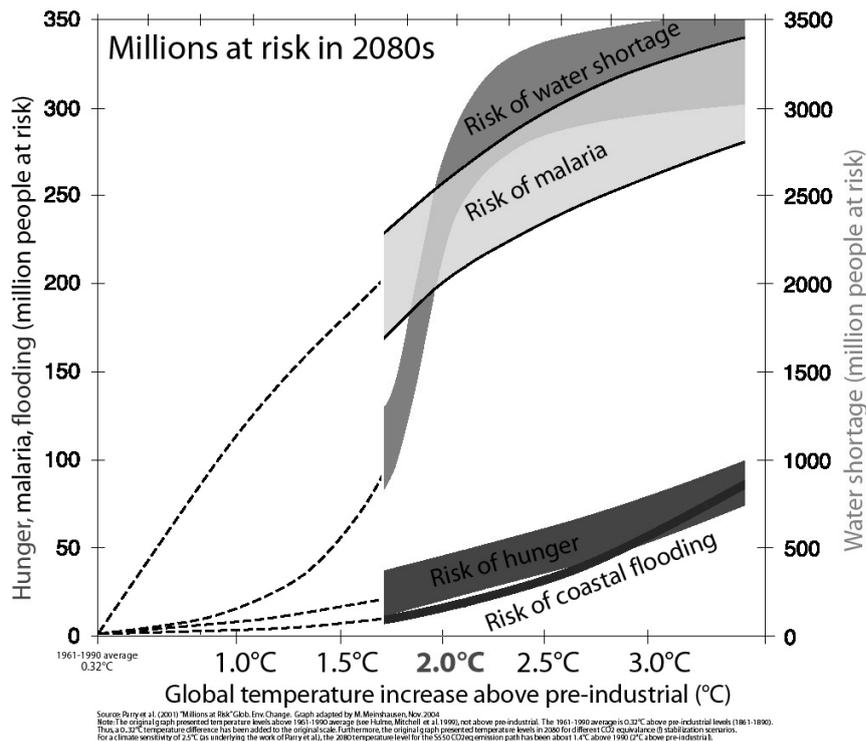
the professional characters of the scientists involved are unimpeached.

Scientific research into climate impacts shows that 2°C objective is no guarantee to avoid significant adverse climate impacts and that overshooting the 2°C objective is likely to multiply adverse impacts and potentially trigger large scale catastrophic events. Research also indicates that global warming will increase the frequency and/or intensity of extreme weather events. While it is not possible to attribute a particular heat wave or hurricane to global warming, the trends are clear. Scientists have said that recent extreme weather events match predictions of extremes caused by global warming. "We will always have climate extremes. But it looks like climate change is exacerbating the intensity of the extremes", according to Omar Baddour (WMO). The first half of 2010 was marked by the heat wave and related forest fires in Russia, devastating floods in Pakistan, landslides and flooding caused by months of torrential rains across China and downpours in countries including Germany and Poland. "Global warming is one reason" for the rare spate of weather extremes, said Friedrich-Wilhelm Gerstengarbe, a professor at the Potsdam Institute for Climate Impact Research.

Failure to curb carbon emissions could result in further devastating changes. "The closer we get to a four-degree rise, the harder it will be to deal with the consequences", said Dr. Mark New, climate expert at Oxford University. To stop global temperatures from rising by 2°C, we have a global emission budget of a trillion tonnes CO₂ during the first 50 years of this century. Of this budget we have already used up a third in the first nine years. At present rate of emissions, we will use up the remaining two-thirds by around 2030¹.

"If we continue burning fossil fuels as we do, we will have exhausted the carbon budget in merely 20 years, and global warming will go well beyond two degrees," says Malte Meinshausen, climate researcher at the Potsdam Institute for Climate Impact Research.

¹ Meinshausen et al. (2009), "Greenhouse-gas emission targets for limiting global warming to 2°C." Nature 458 (7242): 1158



(c) M. Meinshausen (2004)

2. Cost-efficient 2°C compatible 2050 trajectory

The fourth Assessment Report of the Intergovernmental Panel on Climate Change comes to the conclusion that collective reductions of 25% to 40% below 1990 levels by 2020 are necessary for industrialised countries to have a 50% chance to remain within the 2°C temperature increase limit. By 2050, industrialised countries would need to be at 80% to 95% below 1990 levels. In October 2009, the European Council supported this long-term target by setting the abatement objective for Europe and other developed economies at 80%-95% below 1990 levels by 2050.

In order to be consistent with a 2°C compatible pathway, according to Ecofys analysis, different effort sharing approaches¹ result in an EU share of between 29-33% below 1990, to be achieved domestically and without offsets (for Annex I aggregate reductions in the high end of the range, EU would need to achieve at least 40%).²

Looking at the 2050 trajectory is critical as it is significantly more costly for the EU to 'catch up' to a 2°C compatible pathway post-2020 if a 20% target is maintained due to the massive amount of capital stock that will be built over the next decade. Without a stronger cap on emissions the majority of this capital stock will be high carbon, which would then need to be abandoned and rapidly replaced by low carbon infrastructure in later years. This concerns large scale investments such as power plants, but also smaller investments such as housing. Such a delayed approach would be very costly, and unlikely to be followed in practice.

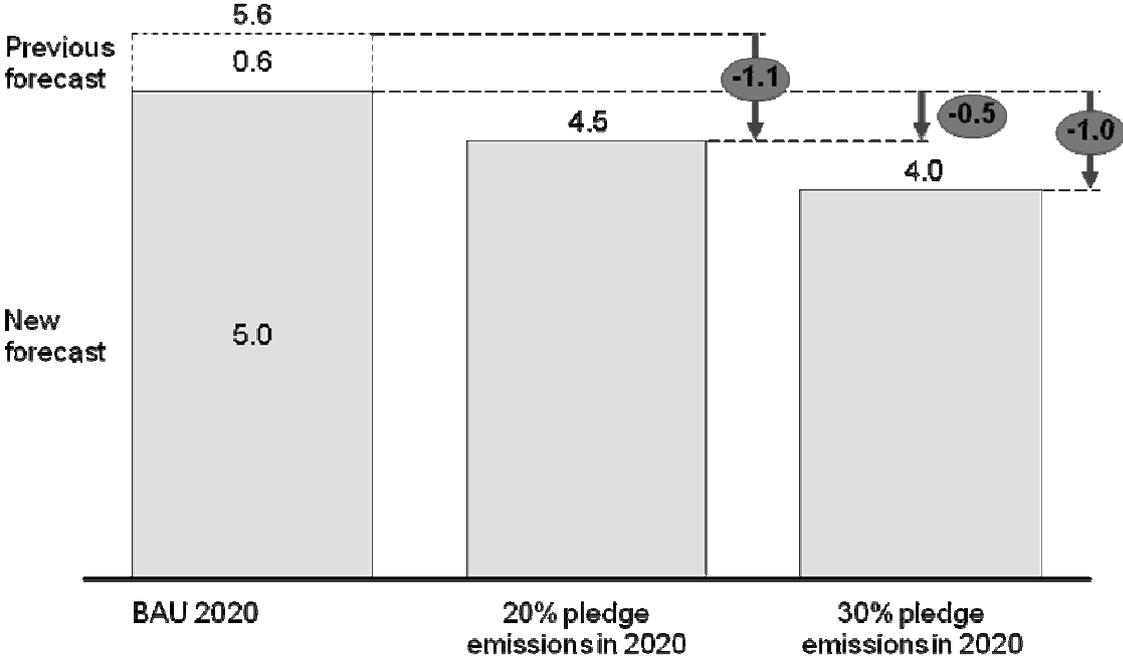
¹ equal reduction to baseline 1990, equal marginal abatement costs, converging per capita emissions or GDP + 2005 emissions

² Ecofys "Possible future reduction targets for the EU", 2009

Several studies point out that the EU's 20% target is not stringent enough to ensure the time consistency of the EU emissions reduction pathway as in line with an 80% or 95% emissions reduction trajectory for 2050¹. McKinsey, a consultancy also expects abatement potential to be cut in half by 2030, making future targets increasingly hard to reach, if action is delayed by 10 years.²

The case for early action is especially strong for the non-ETS sectors and power sector investment. The period 2010-2020 is key for investments for these sectors. In the power sector for example, the EU needs to replace 1 trillion Euros in energy-related equipment³. Replacing these with existing energy-efficient and low-carbon technologies results in lower energy bills that are expected to repay the costs of such transition⁴. If these investments are not made soon enough, given the time frame of infrastructural changes, catch up is impossible during the last decades.

According to Project Catalyst analysis, meeting the 30% target now requires less absolute abatement than the forecast for the 20% pledge pre-recession⁵.



Emissions, Gt, CO2e, 2020

3. ETS effectiveness

¹ Climate Strategies (2010), "Is there a case for the EU to move beyond 20% GHG emissions reduction by 2020?", draft version
² McKinsey and Co 2010. Impact of the financial crisis on carbon economics: Version 2.1 of the global gas abatement cost curve
³ COM(2010) 639 final, Energy 2020
⁴ McKinsey, Climate Change and the Economy: Myths versus Realities (p.8), 2009
⁵ Project Catalyst, Cost Curve 2.1 updates

The climate and energy package was adopted in December 2008 and consists of multiple "20-20-20" targets to be met by 2020;

- reduction in EU greenhouse gas (GHG) emissions of at least 20% below 1990 levels;
- 20% of EU energy consumption to come from renewable sources;
- 20% reduction in primary energy use compared with projected levels, to be achieved through energy saving and improving energy efficiency;

Reaching the renewable energy and energy efficiency targets alone implies 30% emissions reductions domestically without further action¹. In other words, the 20% climate target is inconsistent with the other two targets on renewable energy and energy efficiency.

Several studies show that there will be an oversupply of carbon permits over the period 2008-2020 of the EU ETS under a 20% target, leading to inefficient price signal and a significantly more limited impact for the instrument as initially expected:

- Société Générale predicts that the third Phase of EU ETS will be oversupplied by 99 million tonnes of carbon permits². Even if the EU moves to a 30% reduction target and imposes quality restrictions on CDM credits, it would take until 2017 for the market to absorb the excess allowances generated in Phase 2.
- The staff working document of the Commission estimates that there will still be around 2.4 Gt CO₂ of banked allowances and unused international credits in the system by 2020³.

According to the Commission, if the EU stays with the current 20% GHG targets, carbon prices will still only be around €16 per tonne⁴ instead of 30€ as expected at the time of adoption of the climate and energy package. This undermines investments incentives to replace Europe's aging energy infrastructure, raises risks of medium-term energy security problems and locking-in high-carbon investment (such as new coal power plants without CCS). As a result, according to E3G analysis, European low-carbon markets outside the renewables sector will be largely destroyed for over a decade.⁵

Over the whole period 2008-2012 emissions are well below cap, leading to a significant amount of banking and build up of potential international credits and banked allowances by 2013. Emission levels in the ETS stay below target until 2016, increasing even more the total amount of unused international credits and banked allowances up to 2016. Even though some this is consumed in the period 2017-2020 because emissions are expected to be slightly higher than target, there are still around 2.4 Gton CO₂ of banked allowances and unused international credits in the system by 2020. Without a move to a higher GHG reduction target, i.e. maintaining the 20% GHG and 20% renewables targets as they are, the Commission analysis concludes that "there are much lower incentives to continue to reduce emissions in the ETS after 2020". The modelling of the Commission results in an ETS carbon price for 2030 at around 20€ and the real emissions covered by ETS to stagnate after 2020, with

¹ Climate Strategies (2010), "Is there a case to move beyond 20% GHG emissions reduction by 2020?", draft version

² In the case the EU keeps its 20% target and does not introduce restrictions on CDM/JI credits.

³ SEC(2010) 650, p. 34

⁴ SEC(2010)650, p. 33

⁵ E3G, *Building a sustainable and low carbon European recovery: How moving to a 30% emissions target is in the European interest*, 2010

compliance under the ETS established with an increasing use of unused international credits and banked allowances.¹

The low carbon price will also reduce significantly the revenues expected from ETS allowance auctioning, therefore cutting the resources available for recycling in energy efficiency improvements and other climate action, including action in developing countries.

4. Costs and benefits of a -30% target

The Commission now estimates that in order to achieve 30% CO₂ reductions by 2020 the carbon price in the EU ETS would amount to about €30 per tonne of CO₂, which is similar to the carbon price estimated in 2008 to be necessary to meet the 20% reduction target in 2008.

Moving to 30% would cost an additional €33 billion-€46 billion, but also has additional co-benefits that could outweigh these costs, see also the Table below.

Table: Additional costs and co-benefits of stepping up to 30% emission reductions (SEC(2010) 650 and HEAL (2010))

	30% (5% offsets)	30% (no offsets)
Costs:	€33 billion	€46 billion
<i>- of which lower energy imports</i>	€9 billion	€14 billion
Co-benefits:	€6 billion - €17 billion	€13 billion - €36 billion
- Health	€3.5 billion - €14.6 billion	€7.3 billion - €30.5 billion
- Air pollution	€2.8 billion	€5.3 billion

Costs

The costs of meeting the 20% target have fallen and are now 30% less than expected 2 years ago. Moving to 30% means that total additional costs would be around €33-€46 billion. This is an additional cost of around 0.2%-0.3% of GDP in 2020. Going to the 30% reduction target represents an increase of €11 billion compared to the absolute costs of the climate and energy package in 2020 as projected in 2008². While these short term costs of moving to 30% compared to staying at 20% are small (0.2% of GDP), the long term gains are high (up to 10% of GDP)³.

The costs are in reality investments that are manageable, and in many cases highly profitable.⁴ Starting from the assumption that all energy-related equipment in the EU at the end of its economic life would be replaced with energy-efficient and low-carbon technologies, and without taking into account other co-benefits beyond reduced energy costs, Ecofys study concluded that EU can achieve a 30% cut in greenhouse gas emissions at practically zero net

¹ SEC (2010) 650, p 30, pp 33-34

² SEC (2010) 650, p. 46 and COM (2010) 265, p. 8

³ Climate Strategies, *Is there a case for the EU to move beyond 20% GHG emissions reduction by 2020?*, 2010

⁴ McKinsey, *Climate Change and the Economy: Myths versus Realities* (p.7), 2009

cost¹.

Co-benefits

The European Commission has calculated that moving to the 30% target will lead to a yearly €3.5 to €16.7 billion reduction in **health** damage and a yearly €2.8 to €5.3 billion reduction in air pollution control costs. [The higher end of health co-benefit estimates relate to a 30% target which is achieved domestically in the EU, without use of external credits]²

According to HEAL these estimates by the European Commission could be too low, since only mortality co-benefits are included. The health co-benefits of a move to a 30% target are in the range of €5 to €30.5 billion when including also morbidity, i.e. health co-benefits related to reduced costs from illnesses. The calculation of health benefits takes into account anticipated improvements in life expectancy, respiratory and cardiac health, reductions in hospital admissions, chronic respiratory disease, asthma attacks and other respiratory and cardiac conditions, and the reduction of days of restricted activity due to respiratory health problems.³

The benefits for those with existing respiratory and cardiovascular problems would be significant for both citizens and governments. There are eight member states that would do particularly well from a higher target including: Germany, Poland, France, Italy, Belgium, Spain and the UK⁴.

An increased 2020 emissions reduction target and strengthened climate policies have the potential to improve **energy security** of the EU through⁵:

- A decrease of energy demand (-15% instead of -4% business as usual).
- A diversification of the fuel mix (12% less oil demand, 27% less gas demand, 31% less coal demand).
- A lower dependency on imports.

The Commission estimated the reduction in the fuel import bill to correspond to €40 billion in 2020⁶. These calculations were made with a conservative oil price of US\$ 88 by 2020, while the IEA (2010) already predicts an oil price of US\$108 by 2020. As a result the estimated benefits of lower energy imports would increase by more than 20%. In December 2010 oil prices were already beyond US\$88 per barrel and oil prices rose above US\$95 per barrel in January 2011, for the first time since October 2008.⁷

¹ Ecofys, *Emission Reduction Potentials and Economic Costs for Climate Change* (10/2009)

² SEC (2010) 650, p. 59

³ HEAL / EMRC *Acting now for better health, a 30% reduction target for EU climate policy*, 2010

⁴ HEAL / EMRC *Acting now for better health, a 30% reduction target for EU climate policy*, 2010

⁵ Climate Strategies (2010), "Is there a case for the EU to move beyond 20% GHG emissions reduction by 2020?", draft version

⁶ The lower import bill of €40 billion was calculated compared to the baseline situation of already implemented policies. Compared to the reference situation (full implementation of the climate and energy package) the lower energy imports are calculated to be €9 billion - €14 billion in 2020. COM(2010) 650

⁷ According to Reuters, BlueNext, EEX, CDC Climat Research

According to IEA's analysis, the EU has seen its oil import bill rise by US\$ 70 billion in 2011 - equal to combined budget deficits of Greece and Portugal. The IEA chief economist has warned "oil prices are entering a dangerous zone for the global economy", with the ratio of countries' oil import bills to GDP close to levels last seen during financial crisis in 2008¹.

If oil prices would rise to US\$115 or US\$150 bbl oil by 2020, this would result in *additional* annual savings of €40 billion respectively €68 billion in 2020 from a move to a higher reduction target.² However, these benefits only occur if emissions reductions are achieved inside the EU and with strong emphasis on increased energy efficiency investment.

Lloyd & Chatham House predict "[we] are heading towards a global oil supply crunch and price spike. Energy markets will continue to be volatile as traditional mechanisms for balancing supply and price lose their power."³

Stepping up to 30% is likely to create a significant number of new **employment** in particular in sectors dealing with the renewable energy and energy efficiency. Leading and being more innovative also allows benefitting from a rapidly growing world market for low carbon production technology. Maintaining the strong position of EU companies in such a rapid growing world market would give a boost to employment in Europe.

Calculations by the European Commission with the GEM E3 model show that net employment could increase with more than 1 million jobs in 2020. These best impacts are achieved with the introduction of taxation in the non-ETS sectors, full auctioning in the ETS sectors and recycling of the revenue to reduce the costs of labour⁴.

Modelling by PIK et al. indicates that the higher climate ambition corresponds to new jobs for up to 7 million unemployed until 2020⁵.

Moving to a 30% reduction target would also **increase auction revenues** under the ETS. According to the Commission estimate, if the move was implemented in the ETS solely through reducing auctioning rights by some 15% over the whole period 2013-2020, representing some 1.4 billion allowances, the auctioning revenue for Member States would increase by around a third, as carbon prices are expected to increase by more than the reduction of allowances auctioned⁶. If the allocation was cut across the ETS sectors evenly, the increase in revenues would be even more significant.

5. Competitiveness of the EU economy and opportunities for green growth

Carbon leakage

¹ Financial Times, *Oil price 'enters danger zone'*, 11 January 2011

² E3G, *Building a sustainable and low carbon European recovery: How moving to a 30% emissions target is in the European interest*, 2010

³ Lloyd's & Chatham House, *360° Risk Insight – Sustainable Energy Security*, 2010

⁴ SEC(2010) 650, p. 55

⁵ PIK et al (not yet published), "The Europe Mitigation Project - Assessing the growth and job implications of moving the European climate target from -20% to -30%"

⁶ COM(2010) 265, p. 6

One of the important considerations in EU climate policy is avoiding "carbon leakage". This concerns the risk that in the absence of sufficient global effort, domestic actions leads to a shift in market share towards less efficient installations elsewhere, thereby resulting in increased emissions globally. The climate and energy package adopted in 2008 has put in place measures to counter carbon leakage, like the free allocation of CO₂ allowances. According to the European Commissions, there have been several developments since 2008 that have consequences for the carbon leakage debate¹:

- The carbon price has been lower than originally foreseen and is projected to continue to do so.
- Due to the fall in emissions, energy-intensive sectors already in the ETS before 2013 are likely to end up with a very considerable number of unused free allocated allowances, which can be carried over into phase three (2013-2020). This will put them into a comparatively better position when facing international competition compared with 2008 estimations.
- UNFCCC negotiations are continuing. All developed countries and major developing countries - so the key competitors for the EU's energy intensive industries - have for the first time officially promised to undertake actions to reduce emissions and have taken on concrete pledges.

Based on detailed analysis of companies operating under the ETS, the Grantham Institute for Climate Change has found that "most of the sectors entitled to free emission permits are not facing an increased risk of closure or relocation outside of the EU as a consequence of permit auctioning. Free permit allocation is therefore just a transfer of tax-payers' money to industry without any additional social benefit"².

Econometric analysis by CE Delft (2010) points to the same conclusion: "There is ample evidence that the energy intensive industry has passed through the prices of their freely obtained allowances during Phase1 and Phase 2 of the EU ETS." This has generated windfall profits in these sectors of around €14 billion. "Under free allocation both windfall profits and carbon leakage may be stimulated."

"Free allocation thus reduces economic efficiency. It risks creating perverse incentives that not only reduce the overall efficiency of emissions trading (thus raising costs to other industries) but can also 'over-subsidise', leading to windfall profits."³

According to the European Commission, impacts of the EU's 20% target are estimated to be less than 1%, with the organic chemicals, inorganic chemicals and fertiliser sectors hardest hit with production losses of respectively 0.5%, 0.6% and 0.7%. Only the sector "other chemicals" has an even higher impact of 2.4%. With an implemented Copenhagen Accord, some EU energy-intensive sectors would actually be in a slightly better situation compared to the EU's unilateral implementation of the 20% target.

The incremental impact of stepping up the EU effort to 30% on the output of the EU's energy-

¹ SEC(2010) 265, p. 10

² Centre for Economic Performance (2010), "Still time to reclaim the European Union Emissions Trading System for the European tax payer"

³ Carbon Trust (2010), Tackling carbon leakage: Sector-specific solutions for a world of unequal carbon prices"

intensive industry, while the others remain at their low pledges, would be limited. Stepping up to 30% would entail extra estimated production losses of around 1% for the ferrous and non-ferrous metals, chemical products and other energy intensive industries compared to the 20% target. Impacts for the sectors of organic chemicals, inorganic chemicals, fertiliser and "other chemicals" increase to 0.9%, 1.1%, 1.2% and 3.5% respectively.¹

Cambridge Econometrics et al study finds, under the assumption that Copenhagen Accord low pledges would be implemented, the shift from a 20% EU GHG reduction target to a 30% EU GHG reduction target only has a very small impact on all but the three sectors already identified as being at risk. For the sectors facing a substantial production loss the additional impact of meeting the 30% EU target is modest.²

The actual risks that employees in the European heavy industries face are therefore not related to high carbon prices, but the reduced demand in the European construction and infrastructure markets. A smart way to increase growth and jobs in these markets is to incentivise investment in large-scale low carbon infrastructure.³

Comparability of efforts

The EU's climate target is often compared to other countries' efforts, especially in the context of international climate negotiations or in the context of carbon leakage. While the EU's target could represent little of a constraint for another decade (a 2.7% reduction from now up to 2020⁴), other countries are stepping up their efforts.

China, for example, aims to reach an installed capacity of 300GW of hydro, 100GW of wind and 20GW of solar capacity by 2020. The targets are expected to reduce carbon emissions by 1.38 billion tonnes annually⁵. Under the Copenhagen Accord, China has pledged to lower the carbon intensity of its GDP by 40% to 45% with respect to 2005 by 2020. In addition it intends to increase the non-fossil fuel share of primary energy consumption to 15% and increase forest coverage by 40 Million hectares and forest stock by 1.3 billion m³. China has also indicated it will start emissions trading pilots before 2015⁶.

The Climate Change Performance Index⁷, that ranks the different countries in terms of what they are doing regarding climate change, shows that the EU is not acting alone. The best performing country is Brazil on the fourth place (the first three places are left empty) and among the top ten performing countries are also Mexico and India.

Changing the base year would also change the comparability picture. The EU's 20% pledge from 1990 emissions represents a 13% reduction in reference to 2005. In comparison, the US

¹ COM(2010) 650, p. 10&11

² Cambridge Econometrics, ENTEC and Climate Strategies, *Assessment of degree of carbon leakage in light of an international agreement on climate change*, 2010

³ E3G (2010), "Building a sustainable and low carbon European recovery: How moving to a 30% emissions target is in the European interest"

⁴ EEA, October 2010

⁵ Ernst&Young (2010), "Renewable Energy Country Attractiveness Indices"

⁶ Carbon Positive, 22 July 2010

⁷ Germanwatch & CAN Europe (2010), "Climate Change Performance Index 2011"

has a target of 17% and Japan a target of 30% reductions compared to 2005.¹

Progressive European industry is calling for European leadership in the development of a climate compatible economy: *"The EU's future competitive advantage lies in encouraging and enabling its businesses to help drive the transformational change that will occur in the world economy within the next couple of decades, not to hide from it."* By moving to a higher target, the EU will have a direct impact on the carbon price through to 2020 and deliver the economic signals that companies need if they are to continue investing billions of Euros in low carbon products, services, technologies and infrastructure. European leadership will also help rebuild the international momentum towards an ambitious, robust and equitable global deal on climate change.²

This is consistent with the Potsdam Institute for Climate Impact Research study RECIPE³. The report shows that even if other regions delay carbon pricing until 2020, Europe will enjoy a first mover advantage when unilaterally implementing climate policy. Europe is better off in this case compared to a scenario in which all world regions, including Europe, delay action until 2020. The benefits of anticipating future emission reductions and redirecting investments early on exceed the costs of higher cumulative emission reduction commitments, even when the international climate negotiations are moving in a slower pace.

Opportunities for green growth

The independent 2010 Renewable Energy Attractiveness Index now cites the US and China as the best investment opportunities for renewable energy. In Deutsche Bank 2010 report China is reported to have taken the global lead for the first time in terms of new capital investment in clean energy in 2009.⁴

Carbon Trust (2009) emphasises that EU competitiveness is at risk: "as overall investment levels race ahead in North America, we are seeing that European businesses are poorly capitalised in comparison. Consequently, European companies are likely to be less competitive in the global clean energy marketplace."

So while the HSBC (2010) estimates that "by 2020, the world's low-carbon energy market will be almost three times larger than it is today" and "energy efficiency becomes the single largest opportunity by 2020", Europe is losing its vanguard position of clean energy investment.

Raising the European target from -20% to -30% therefore presents "an important opportunity for revitalizing the European economy - regardless of what the rest of the world does in terms of climate policy. Over the coming decade, such a revitalisation may increase the growth rate of the European economy considerably - up to 0.5% per year. Until 2020, this corresponds to

¹ SEC(2010) 650, p. 9

² Letter published in Financial Times from some members of The Prince of Wales's Corporate Leaders Group on Climate Change and Copenhagen Communiqué Signatories backing French, German, UK Ministers call for 30%, 21 July 2010.

³ Edenhofer et al., Report on Energy and Climate Policy in Europe (RECIPE), Potsdam Institute for Climate Impact Research, 2009

⁴ Deutsche Bank, The Green Economy: The Race Is On (April 2010)

new jobs for up to a higher GDP of up to 750 billion EUR." (PIK et al., not yet published)

"Effective and ambitious European regulation is a key vehicle for new revenue and market generation and facilitates high levels of GDP growth" according to University of Cambridge - Programme for Sustainability Leadership report on *The economic case for 30% GHG reductions*. The advantage of acting earlier rather than later contributes to significant long term benefits for Europe's competitiveness, by maintaining a strong position in a rapidly growing global market for climate-friendly technologies.

According to E3G, putting EU on track to meet its agreed 2050 targets would generate an additional €45 billion per annum of investment in European jobs and technologies by 2020, but will not happen unless the reductions target is raised to 30% and the overwhelming majority of the reductions are achieved inside the EU. "An economically sensible shift to 30% will need to prioritise investment in domestic European energy efficiency ... and maintain European companies' competitive edge in the low carbon race".¹

6. Implementation of the increase in reduction targets

Fair sharing of efforts within EU

According to the Commission, the conclusions of the cost effective sharing of effort between ETS and non-ETS sectors made at the time of the climate package are still valid, i.e. around two thirds of the additional reductions should be put to the ETS and one third to the non-ETS sectors.

The marginal abatement cost of emission reductions varies across EU Member States. Some of the most cost effective reduction potential is found in Member States that are currently below EU average GDP/capita. As noted by the Commission, "In the non-ETS sectors, reduction potentials compared to current effort sharing targets continue to be higher in the poorer Member States".² This was taken into consideration in the Effort Sharing Decision through differentiating the non-ETS reduction targets based on both marginal costs and GDP/capita and through allowing for trading of any overachievement across Member States.

In order to achieve the cost effective reduction potential in the non-ETS sectors, significant public intervention to facilitate financing of initial investments is likely to be necessary. EU financing instruments should be used to address fairness of burden sharing across Member States

Currently, EU structural and cohesion funds represent 41% of EU budget and annual spending of approximately €50 billion. At the moment these funds, a major source of financing to central and eastern European Member States, only allocate roughly 1.2% for energy efficiency, co-generation and energy management, while the potential for improving energy efficiency, reducing energy use and cutting costs in this region is very high³. In line with the

¹ E3G, *Building a sustainable and low carbon European recovery*, 2010

² SEC(2010) 650, p. 43

³ SEC(2010) 360, Commission staff working document accompanying communication on the Cohesion policy: Strategic report 2010 on the implementation of the programmes 2007-2013.

EU2020 strategy, the use of the EU cohesion and structural funds should be better geared to contribute to achieving EU climate policy objectives in a cost efficient manner. The deliberations for a new Financial Framework present a perfect opportunity to direct EU policies in this area to helping all EU regions towards climate compatible and resource efficient development path.

Furthermore, EU level Research & Development investments could be scaled up to foster innovation and help deliver breakthroughs on climate friendly technologies. Together the EU27 can take on higher-cost and long-term programmes beyond the reach of individual companies or countries. Risk-sharing at EU level generates a breadth of scope and economies of scale which could not be achieved otherwise, and can support geographical balancing in the distribution of investment and access to training linked to 'green skills'.¹ EU research funding under the 7th Framework Programme (FP7) has a budget of € 53.3 billion, of which € 8.5 billion has contributed to environmental research (including climate change)². The discussions about the next framework programme for research (FP8) should equally ensure full consistency with the EU2020 goals, including the climate targets..

Use of international offsets to achieve EU climate targets

The current rules for ETS foresee half of the emissions reductions to be achieved through use of external offsets. As such offsets are generally assumed to be significantly cheaper than EU allowances, provided there is sufficient supply it is fair to assume that half of the reductions required under the 20% would be met through use of CDM/JI credits (with surplus banked to the next period). Under the effort sharing decision, Member States can use external credits for up to 80% of the reductions required under the legislation and can transfer that quota between themselves.

The use of offsets replaces investment in Europe and delays domestic reductions in Europe, making them more costly. Using credits from investments outside EU in sectors that are considered to be exposed to carbon leakage risk within the EU would also seem to be counterproductive to the aims to prevent shifting production from Europe, sometimes even giving indirect subsidies to these industries outside the EU.

A study on German installations came to the conclusion that it has been possible for companies to reap extensive additional profits by selling the allowances which they were allocated for free and surrendering cheaper CDM credits to meet their obligation under the EU ETS. It can be estimated that the companies under discussion will make further profits of approx. € 1 billion by 2020.³

Allowing for the use of international credits for compliance under the EU ETS means installations have real emissions higher than the cap in the EU. When environmentally questionable CDM credits are used to meet obligations under the EU ETS, it can lead to an increase in total emissions. It has been estimated that at least 83 % of the CDM credits used

¹ E3G, EU Budget Reform: European Low Carbon Transformation Fund, 2010, DRAFT version

² Birdlife Europe et al., Changing Perspectives: How the EU budget can shape a sustainable future, 2010

³ Oekoinstitut, *Free allocation of emission allowances and CDM/JI credits within the EU ETS Analysis of selected industries and companies in Germany*, 2010

by German companies in 2008 and 2009 were of questionable environmental integrity (CDM credits from HFC-23 and adipic acid projects). Thus, it is essential that there are tighter rules for CDM projects in the future.¹

To enhance the environmental integrity of CDM credits from countries which are not participating adequately in international climate efforts, the Commission has proposed to apply a multiplier, for instance requiring more than one CDM credit to be surrendered per tonne emitted in the ETS.² Another way to close the competitive gap between energy-intensive companies inside and outside the EU, is to move towards sectoral crediting based on ambitious crediting thresholds (except for Least Developed Countries).³

LULUCF(Land Use, Land Use Change, and Forestry)

An inclusion of land use related activities to the scope of the 30% target is likely to lead to lowering of the reduction commitments in the other sectors. This would be highly likely if the international accounting rules that are currently favoured were applied. If land use activities were included into the EU reduction commitments, additional rules would need to be applied to guarantee environmental integrity, including full accounting for increases of all GHG emissions from land use and forestry activities, for instance as a result from use of bioenergy.

¹ Oekoinstitut, *Free allocation of emission allowances and CDM/JI credits within the EU ETS Analysis of selected industries and companies in Germany*, 2010

² COM(2010) 265, p. 12

³ COM(2010) 265, p. 12